Supporting Illinois' New Fueling Network

Matthew Deal – Utility Policy Manager

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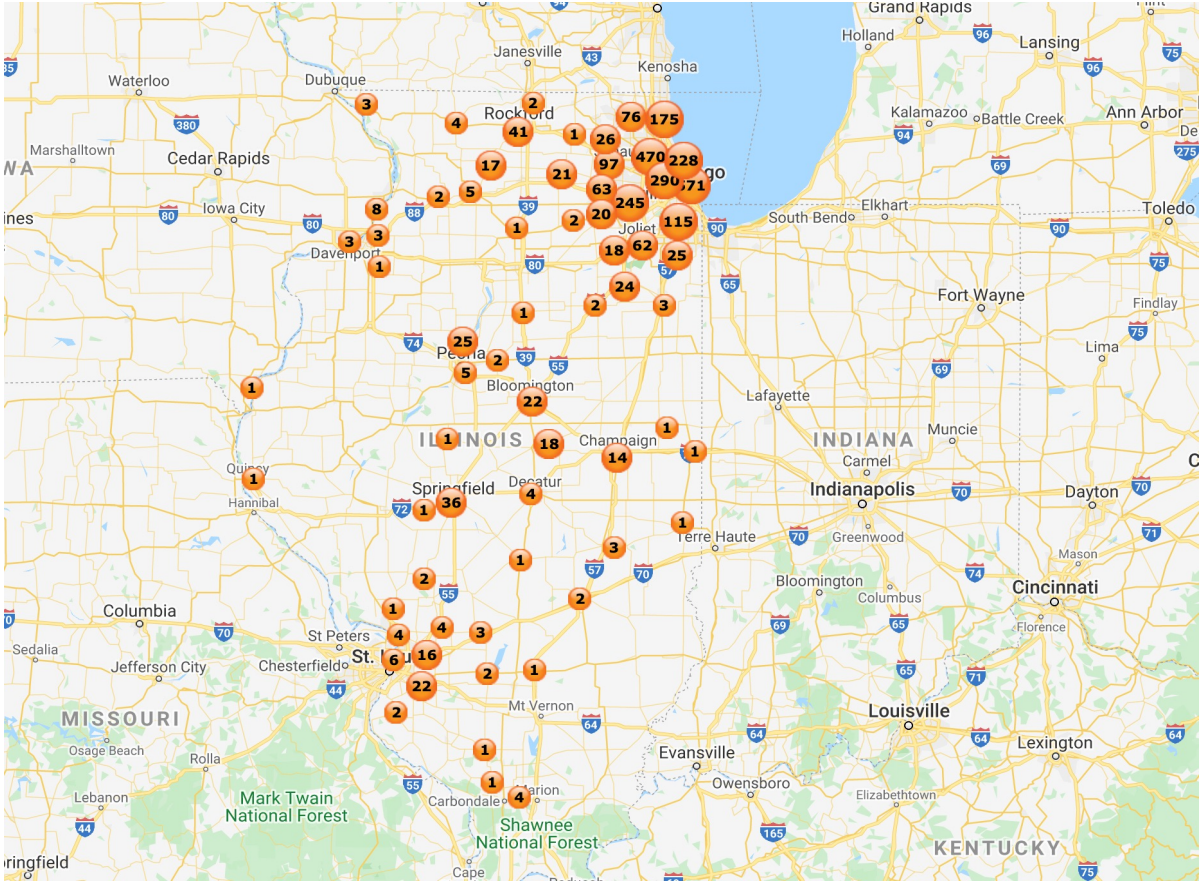
ChargePoint at a Glance

+ Founded in 2007, with 900+ employees worldwide
+ Based in Silicon Valley, with operations in Arizona, Europe and India
+ NYSE Stock symbol: CHPT

ChargePoint in Illinois



Comprehensive Portfolio to Fit Every Need

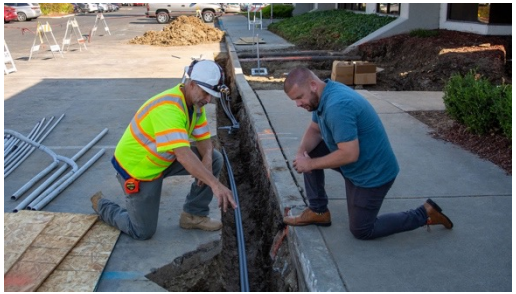
Software +

- Access control: Who can use the stations and when
- Pricing: Site host can choose to set fees
- Waitlist: Drivers can get in line when all ports are occupied
- Scheduled charging
- Power sharing to maximize ports while avoiding costly upgrades
- Proactive and remote diagnosis
- Power management to avoid demand charges

Hardware +

- Solutions for every use case, all vehicle types and brands
- High efficiency in power and footprint
- Modular, scalable, secure architecture designed for serviceability
- Unparalleled quality: advanced testing (vehicle, functional, climate, environment) for long-term reliability
- Options for site hosts to use custom branding

Services



- Accurate site qualification, quality site preparation and professional installation
- Nationwide network of O&M partners
- Initial activation and configuration services
- Standard warranty coverage for one year
- ChargePoint Assure maintenance and management program
- Station owner phone support during business hours
- 24/7 driver support in multiple languages

Large and Diverse Customer Base

Residential

Individual

>15,000 Homes (expected to grow at >50% CAGR over next five years)

Multi-Family

Fleet

Fleet

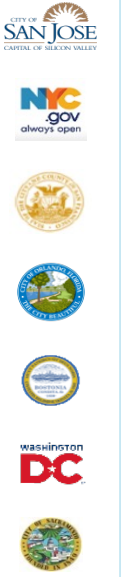
Public & Semi-Public

Education

Healthcare

Corporate

Municipalities



Parking

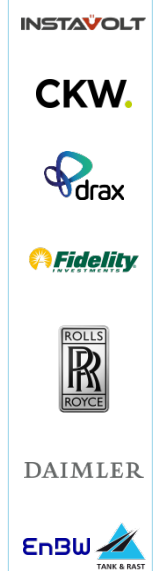
Retail & Hospitality

Retail

Hospitality

International

Europe



Utilities

Energy

5,000+ Commercial Customers Representing Thousands of Places to Charge

How we work with Site Hosts and Utilities

Utility as a Customer and Customer Incentive Programs

- Utility Fleet and Workplace
- Public Charging
- Program Design and Implementation
- Sales Support and Enablement

Site Host Engagement

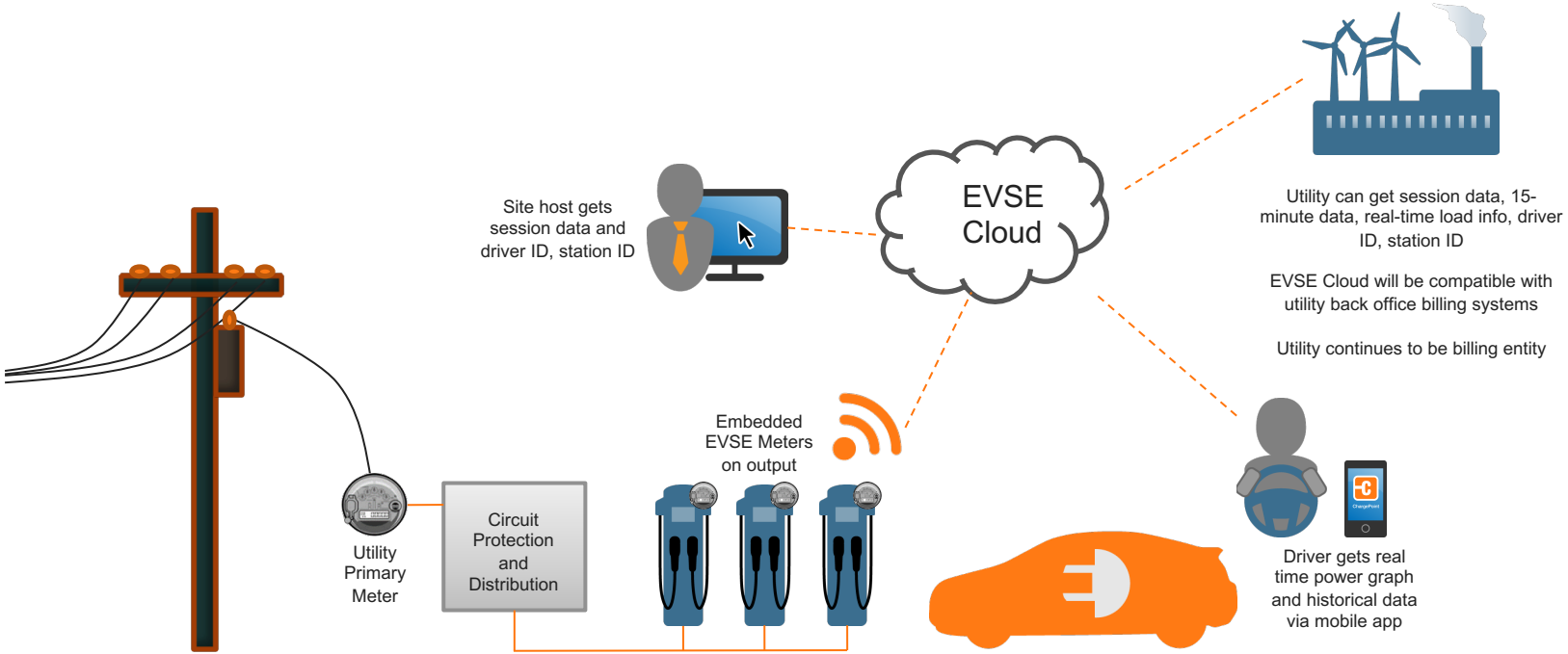
- EV charging solutions to meet business goals
- Support businesses to manage fueling costs and maximize profitability

Market Development

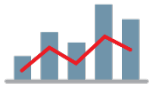
- Rate Design
- Driver Outreach and Education
- EV Advocacy

Networked Charging and Load Management

Understanding Networked EVSE: The Role of Embedded Metrology



Benefits of Networked Charging Stations



	Networked Charger	Non-networked Charger
Dispense Electricity	✓	✓
Visible to Drivers * through mobile app, turn by turn directions, nearby amenities, real-time availability, 24/7/365 driver support	✓	✗
Waitlist & Driver Alerts * reserve a station, know when car is fully charged	✓	✗
Access Control for Owners * public/private, loyalty rewards, fleet services	✓	✗
Recover Revenue: Session Fees * charge per kWh, hourly, or per driver group	✓	✗
Data Analytics * station usage, # of unique drivers, charging behavior, utilization, revenue, costs, and GHG offset	✓	✗
Remote Access and Maintenance * proactive monitoring & fixes, software updates	✓	✗

Demand Side Management Options

Demand Response

+ Utilize DR capabilities to modulate/curtail charging during periods of grid stress
  - Examples:
    - Emergency Curtailment
    - Partial Curtailment (XX%)
    - Reduced power limit (X kW)
+ Event notification and opt out functionality to the Driver
+ Monitor and verify actual load curtailment

Price Signals

+ ChargePoint Home has an embedded meter providing interval level data
  - Real-time power monitoring
  - Power, energy, current, voltage
  - Local data storage and secure communication channel
+ Utility can use data for…
  - Utility bill sub-metering TOU
  - Off-bill incentive for off-peak charging

Smart Home Charging Programs

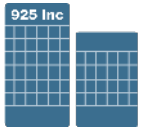
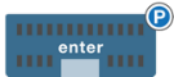
Utilities

DERMS Providers

Establishing a Sustainable Regulatory Framework

There is no ubiquitous EV charging business model

Giving drivers a place to plug in helps to achieve a variety of operating & business goals

Home	Fleet	Workplaces	Multi-Family Homes / Commercial Property	Parking	Retail & Hospitality
					
MANAGE CHARGING & SAVE MONEY	**LOWER COST OF TRANSPORTATION**	**ATTRACT & RETAIN TALENT**	**ATTRACT & RETAIN RESIDENTS & TENANTS**	**ATTRACT NEW CUSTOMERS**	**INCREASE SALES**
+ Track usage and expenses + Charge during low cost off-peak hours	+ Meet government mandates and regulations + Reduce operating expenses with lower fueling and maintenance costs + Proactively manage expenses + Achieve sustainability goals	+ Increase employee satisfaction + Improve productivity + Achieve sustainability goals	+ Increase average rent and property value + Provide valued amenity + Meet emerging state and city regulations + Achieve sustainability goals	+ Drive revenue + Provide differentiating amenity	+ Attract new and repeat customers + Increase shopping time + Boost customer satisfaction + Achieve sustainability goals

Offering charging services is more than just a direct revenue model for commercial site hosts

Utility Engagement is Vitally Important

- ChargePoint supports and encourages a greater role of utilities to support EV adoption
- Utility investment or incentives in EV charging infrastructure can help accelerate access to charging solutions while encouraging grid benefits
- Various investment models exist, and each one can be designed to work alongside the existing competitive market and encourage the development of sustainable future

- Questions about **ownership** of EVSE overlook the more critical **operational** questions that will shape the market for many years:
  - **Do customers continue to have choice of different EV hardware and software?**
  - **How can we align charging services with onsite activities of site hosts?**

Various Models Exist for Utility Investment

Utility Distribution Service
1

Site Host Electrical Facilities
2

Site Host EV Charger & Network
3

Utility pad transformer

Utility Meter

Electrical Panel, Conduit, Disconnects, Pad, etc.

Site Host EV Charger(s) & Services

Plug-in electric vehicle

A) Business As Usual

Utility/CIAC | Site Host Investment

B) Make-Ready

Utility Investment | Site Host Investment

C) Utility Owner/Custodian

Utility Investment (site host still has choice of solution and control of driver experience)

D) Utility Rebate

Utility Investment | Site Host Investment

Utility Rebate

Regulatory Framework Best Practices

- Maintain **site host choice** of EV charging hardware and software, regardless of who holds title.
- Support **site host flexibility** to control pricing and access, consistent with IL statute & on-site needs.
- **Minimize costs and maximize benefits** by ensuring site hosts have "skin-in-the-game", where feasible, lowering risks to ratepayers and involving site host in the success of deployments.
- Require **networked capabilities** to maximize reliability, flexibility, control, and grid benefits.
- Consider equity in terms of the **full range of transportation/grid benefits and community needs**, including support for public and private MHD fleet electrification in addition to support for LDVs.

California	Colorado	Massachusetts
"*Programs proposed by electrical corporations shall seek to minimize overall costs and maximize overall benefits…not unfairly compete with nonutility enterprises.*"	"*…the Commission shall consider whether the investments and other expenditures are…reasonably expected to stimulate innovation, competition, and increased consumer choices in electric vehicle charging and related infrastructure and services…*"	**For cost recovery, utility proposals must**: "*be in the public interest; meet a need regarding the advancement of EVs in the Commonwealth that is not likely to be met by the competitive EV charging market; and not hinder the development of the competitive EV charging market.*"

Recommendations for Utility EV Programs

ChargePoint's Program Recommendations

- Program design should avoid undue complexity to ease EV adoption for customers
- Utilities should consider comprehensive portfolios across use cases (single/multi family residential, commercial, public and private fleets and DCFC) and vehicle classes (light, medium and heavy duty)
- Program requirements should have baselines for Smart EVSE, but should avoid overly proscriptive mandates on hardware & software
- Utility-side and customer-side make-ready incentives are some of the most effective tools for reducing barriers to adoption EV drivers and site hosts face and can accelerate deployment across the use cases
- Utility incentives should leverage private sector investment, with increased incentives for development in underserved and rural areas of Illinois

ChargePoint's Program Recommendations Cont'd

- Managed charging programs should balance the needs of the grid with realistic parameters that still allow EV drivers to charge when they need to
- Programs should address existing barriers and limitations for EV charging, particularly for demand charges for C&I EV drivers.
- Demand charges should be designed as long in duration (eg. 10 years) and should remain technology neutral. The utilities can still recuperate their costs without discouraging EV adoption with prohibitive demand charges.
- Flexibility and autonomy for Site Hosts is critical for station success. Consistent with existing state law, Site Hosts should retain the authority over pricing policies for charging stations on their property.

Thank You

For further information,

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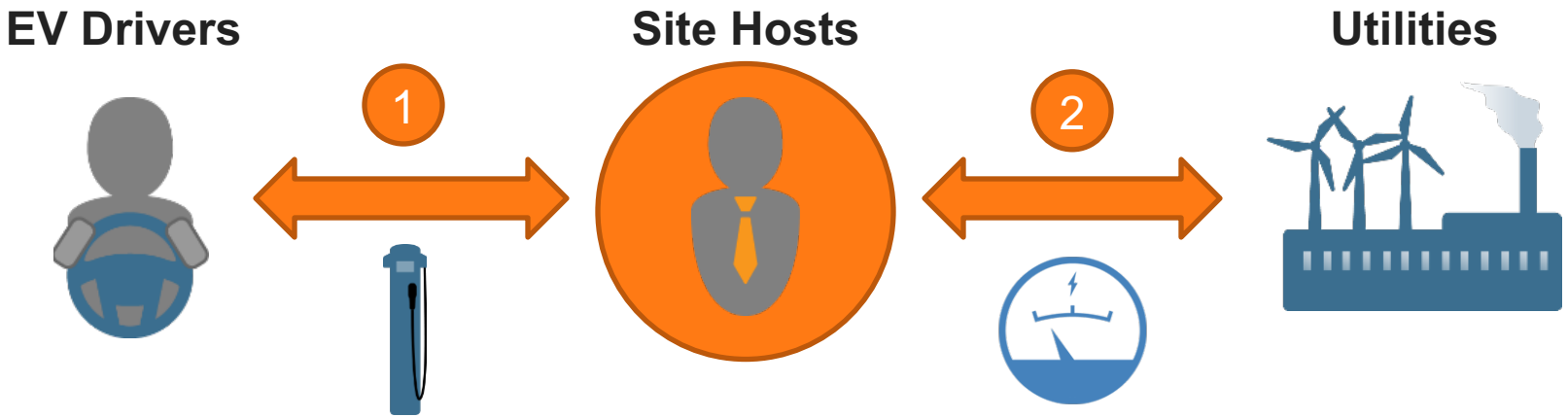
Appendix

Key Transactions in the EV Charging Ecosystem



- Site host at the center of two transactions in EV charging
- Local property managers (site hosts) are the ideal entity to operate stations and set driver pricing to align interests, increase station utilization, and optimize the driver experience
- Site hosts can incorporate utility price signals and/or participate in load management programs to encourage off-peak charging

Regulatory Considerations for EVSE Interoperability

+ **Focus on Functionality**
  - Most appropriate to target functional requirements rather than predetermining which protocols should be adopted by the EVSE industry.
+ **Support Diverse Pathways**
  - Important to acknowledge variety of technological solutions (e.g., energy management).
+ **Don’t Predict; Reinforce!**
  - Many network protocols can hold promise.
  - However, it can be counter-productive (at best) to predict which will become industry standards, let alone which versions thereof.
  - For example, ISO 15118 holds promise but is current under scrutiny due to security issues.
+ **Consumer Experience is Key**
  - Rigidly mandating a specific protocols could hamstring innovation and lead to a poor consumer experiences.
+ **Security is More than Just a Standard**

Consumer Experience: Core OCPP vs. ChargePoint

OCPP

+ Start / Stop
+ Access control
+ Session data
+ Limited pricing
+ Load shedding
+ Firmware updates
+ Alarms

ChargePoint

+ Security
+ Mobile App
+ Waitlist
+ All pricing modes
+ Panel sharing
+ Gateway/Non-Gateway
+ Popular times
+ Fleet Management
+ Driver tips
+ Station photos
+ Installation Wizard
+ Secure RFID
+ Logging
+ Reporting
+ Analytics
+ Station videos
+ Price estimates
+ Station messages
+ 24/7 support
+ Credit cards
+ Offline Behavior
+ Diagnostics
+ Uptime Tracking

Infrastructure and Investment Jobs Act (IIJA): Opportunities for Illinois

Infrastructure and Investment Jobs Act (IIJA)

$25B+ Funding for Highway Charging, Electric Buses, Port Electrification

Highway and Urban Fast Fill
Up to $7.5B

Clean School Buses and Chargers
$5B

Electric Buses
Up to $5B

Low or No Emission Grants
for Med/Heavy Duty Vehicles
$5.25B

Port Electrification
$2.4B

All states must initiate
review of demand charges
by Nov 2022

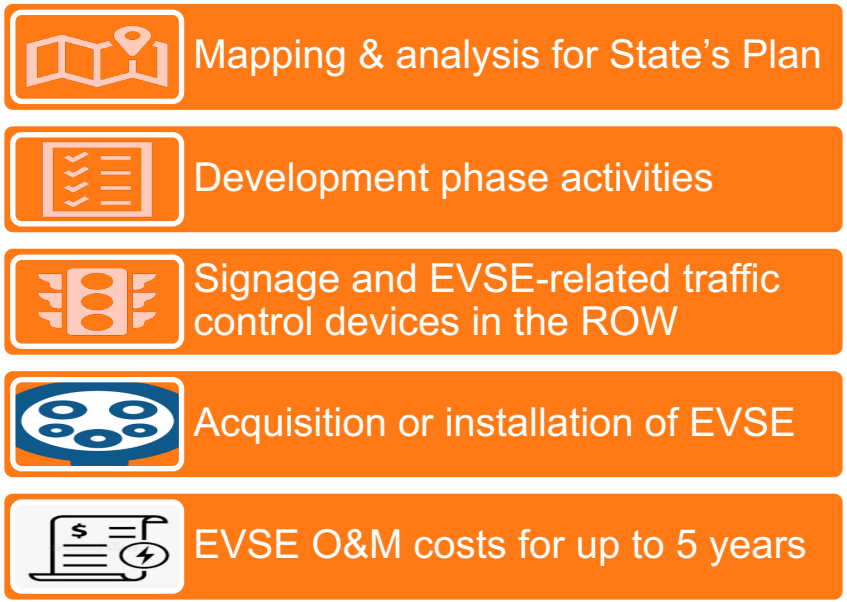
Formula Program Parameters & Eligible Costs

+ The IIJA includes **$5 billion in federal formula funding** for a *National Electric Vehicle Formula Program* ("EVFP"), **$149 million** of which the White House estimates will be allocated to IL.

Program Parameters

+ **Federal Cost Share**: 80%
  - States may "*contract with a private entity for acquisition and installation of publicly accessible*" EVSE.
  - Non-federal share of project costs may be paid by the private entity.
+ **Open Access**: EVSE must be open to "*commercial motor vehicle operators from more than one company.*"

Eligible Program Costs



Considerations from IIJA for Illinois EV Programs

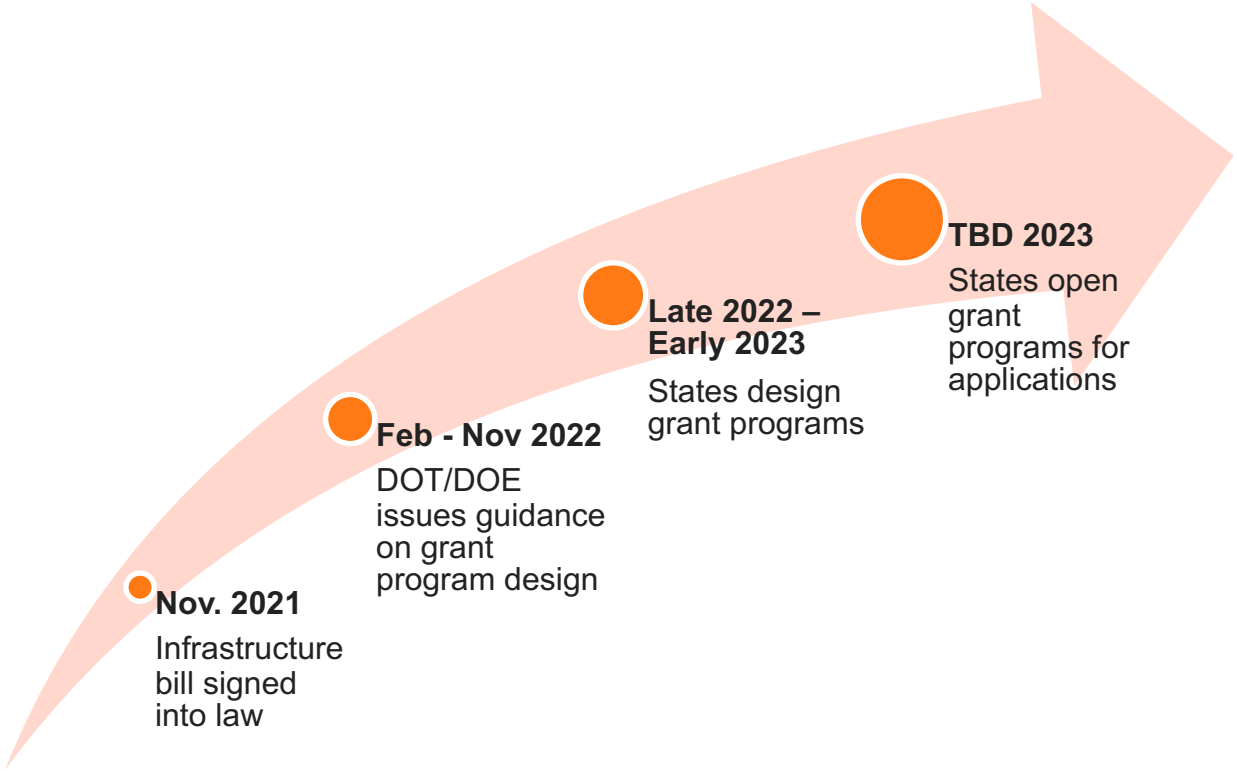
Rate design

- IIJA Section 40431 requires states to consider measures to promote greater electrification of the transportation sector including establishing rates that, among other things:
  - Accelerate third-party investment in electric vehicle charging for LD, MD and HD vehicles
  - Promote affordable and equitable electric vehicle charging options for residential, commercial, and public electric vehicle charging infrastructure.
- ChargePoint supports that rates should be:
  - Technology neutral
  - Cost-based
  - Minimized demand charges & maximize volumetric rates

IIJA Limitations

- NEVP will create a *national* interconnected network of EV charging stations along highway corridors
  - Illinois will still need to meet intrastate charging demand
  - The distribution network will require immense system upgrades and extensions to support a fully electric transportation system across the state
- Utility investments that compliment IIJA can maximize available formula funds and competitive grants for Illinois by focusing on expanding utility distribution infrastructure
  - Make-ready incentives can support initial transportation electrification investments effectively and still leverage private market development

Timeline for EV Formula Program



Recommendations for DOE/DOT for Implementation

1. **Require states to utilize a competitive application process** to evaluate on criteria like cost, benefits for charging station owner, location, experience, and quality of project partners.
2. **Give states flexibility on miles between chargers**, so drivers are best served.
3. **Allow 24 months to construct and activate chargers**, including site selection, site host agreements, utility interconnection, permitting, and construction.
4. **Align Federal grants with other state and local incentives** like pre-existing utility infrastructure programs.
5. **Reserve at least 40% of all funding for underserved, disadvantaged, urban, and rural areas.**
6. **Ensure drivers can always charge** by requiring 24-hour access, 24-hr driver support, and 98% annual uptime.
7. **Give drivers the choice of payment** by requiring chargers to provide multiple payment options and future-proofing credit/debit card requirement by allowing more secure and faster contactless readers.
8. **Require both CHAdeMO and CCS connectors to be supported,** so every EV driver has access to charging.

Recommendations for State Action

+ ChargePoint published a white paper outlining best practices to help states get the most from the EV Formula Program.
  - **Maximize private sector investment** by requiring state agencies to use competitive applications and prioritize underserved and rural areas
  - **Ensure flexibility** in eligible program costs to allow unique site needs to be addressed
  - **Address state & local barriers to EV charging**
    - State should start to work now with cities/AHJs to streamline permitting
    - Consider collecting and publishing AHJ permit timeline data to encourage better performance and to help EV charging installers plan project timelines
  - **Support innovation** in EV charging by avoiding mandates on hardware & software
  - **Align utility infrastructure programs** to complement federal funds

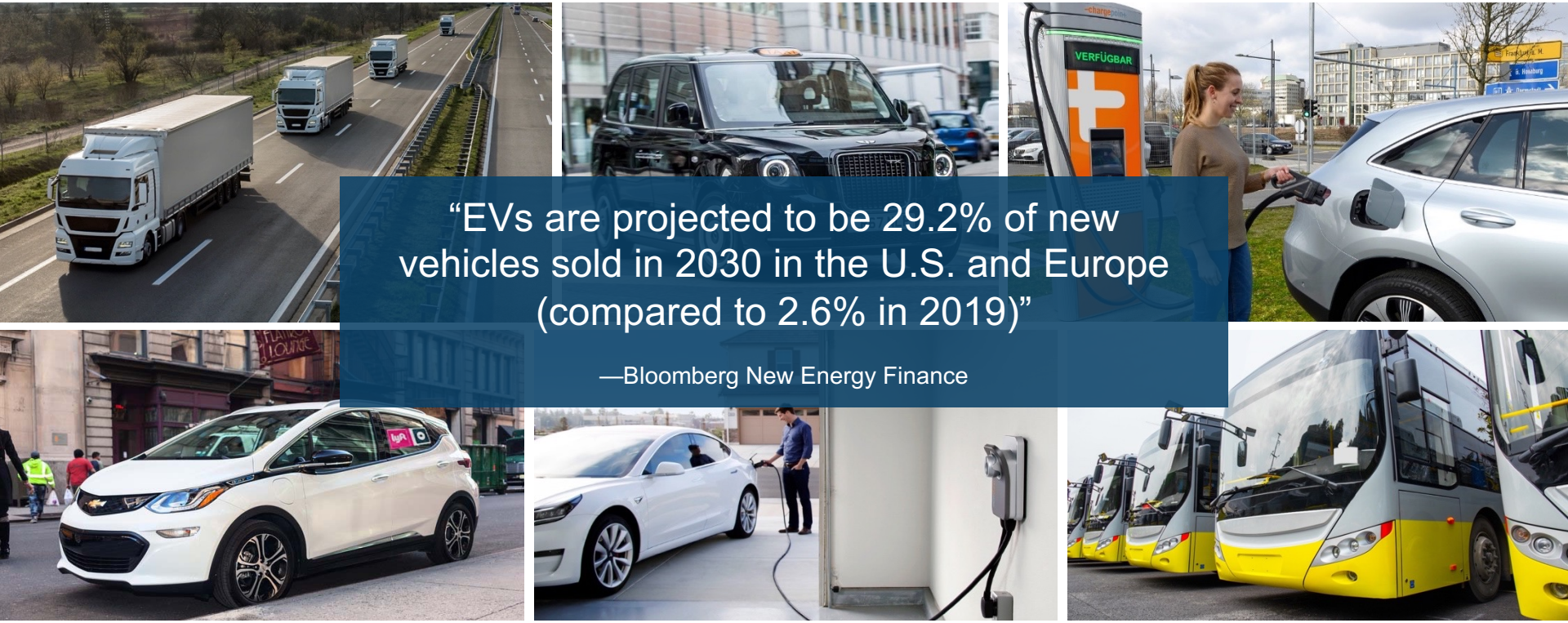
The Electric Revolution Is Here.

Our obsession? Making it easy.

chargepoint+

EV Market Outlook

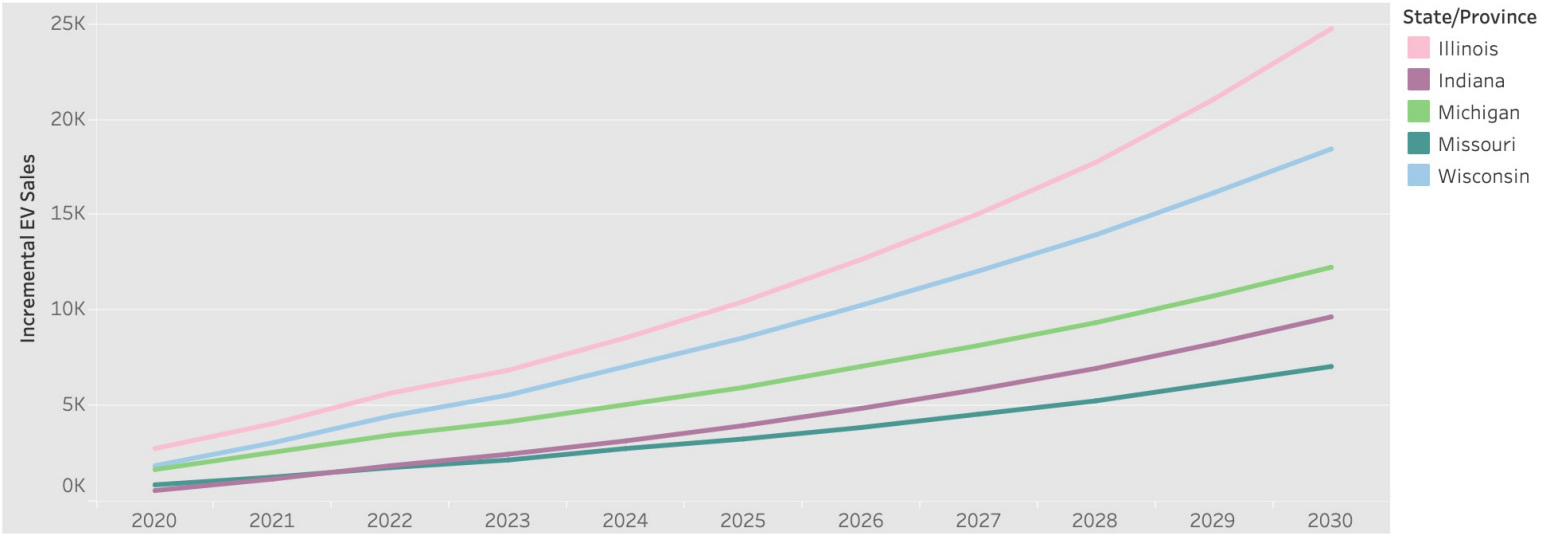
The Future of Mobility Is Electric



"EVs are projected to be 29.2% of new vehicles sold in 2030 in the U.S. and Europe (compared to 2.6% in 2019)"

—Bloomberg New Energy Finance

EV Sales Forecast (2020 – 2030)



State/Province	Cagr (2020..	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Illinois	24.8%	2,700	4,000	5,600	6,800	8,500	10,400	12,600	15,000	17,700	21,000	24,700
Wisconsin	26.2%	1,800	3,000	4,400	5,500	7,000	8,500	10,200	12,000	13,900	16,100	18,400
Michigan	22.5%	1,600	2,500	3,400	4,100	5,000	5,900	7,000	8,100	9,300	10,700	12,200
Indiana	34.4%	500	1,100	1,800	2,400	3,100	3,900	4,800	5,800	6,900	8,200	9,600
Missouri	24.2%	800	1,200	1,700	2,100	2,700	3,200	3,800	4,500	5,200	6,100	7,000

Source: Navigant (MD-EVGEO-20)